

ABSTRACT

The present invention provides automatic gain control (AGC) for a wide variety of conditions encountered in DSL scenarios. In particular, the proposed AGC approach addresses the problem of analog front end saturation in which a plurality of gain stages (i.e., programmable gain amplifiers) and filter stages are interleaved with inaccessible intermediate points. The gain settings of each of the PGAs is increased (614) until the received signal exceeds a given threshold (620) or until the maximum setting for that PGA has been reached (624). If the current PGA setting has been maximized, the next PGA is considered (628) and the process is repeated until no additional gain is needed or until the available PGAs are exhausted. This process is iterated (630) with different maximum PGA settings for each iteration to enable a more uniform gain distribution. Additionally, the order in which the PGAs are considered can be selected, based on the type of communication loop determined (218) to be coupling the analog front end, to improve over performance.